

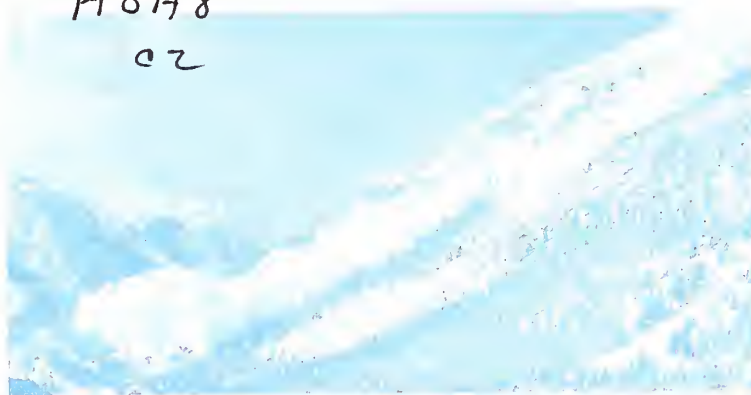
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Avalanche Notes

U.S. Forest Service
Westwide Avalanche Network

DECEMBER 93

Weather

December's weather in the mountain West mimicked that of November, such that snowfall totals were below normal for most sites, but a northern storm track from Alaska to British Columbia to Montana brought above-normal snows to those areas. Mountain sites along the West Coast received virtually all of their snows on the 1st-14th; then a strengthening of the Pacific high shifted the storm track farther north and east and effectively shut off snows on the West Coast and in much of the Intermountain area.

Alyeska, AK, recorded 31" of snow (with 4.75" H₂O) on the 6th and another 21" on the 17th, and reached 118% of normal for the month. Most of Alyeska's avalanches came on the 5th-6th, 17th, and 29th. Eaglecrest, AK, got more than 10" of rain (at their lower study plot.)

In Washington and Oregon, a warm storm hit the Cascades on the 1st-2nd, and dropped 6.45" H₂O at Mt. Hood Meadows, and 7.32" H₂O at Stevens Pass. The heaviest snows were 23" at Mt. Hood Meadows on the 8th-9th, and 25" at Stevens Pass on the 9th-10th. For the month, Mt. Hood Meadows and Stevens Pass both received 79% of normal snows, while Mt. Rainier got 71%.

In the Sierra of California, Sugar Bowl had three double-digit snow days: 17" on the 9th, 16" on the 12th, and 15" on the 14th. Alpine Meadows got 17" on the 12th, and recorded 88% of normal for the month.

In the Intermountain area, Montana was closest to the storm track: Big Mountain recorded 120% of normal snows, and Bridger Bowl, 128%. Jackson Hole, WY, recorded 10" on the 5th, 7th, and 9th, and ended up with 93% of normal. Nearby Teton Pass received only 64%. Sun Valley, ID, received 68%, and all of its snow fell from the 4th-9th. In Utah, Alta and Snowbird received 23" and 21", respectively, on the 12th-13th; Alta wound up with 59%, and Snowbird, 67%.

In Colorado, only Berthoud Pass, at 109%, and Winter Park ski area, at 105%, recorded above-normal snows. Beaver Creek and Telluride got 88%; Steamboat, 85%; Red Mtn Pass, 79%; Copper Mtn, 72%; Wolf Creek, 67%; Aspen Highlands, Vail, and Monarch, 58-62%; Gothic and Purgatory, 55%; and Breckenridge, Crested Butte, and Sunlight, 41-48%.

Taos, NM reported 96% of normal December snowfall.

Avalanche

On December 31, a party of 14 snowmobilers were riding an area known as Peter's Ridge in the Swan Mountains east of Bigfork, MT. They were split into two groups when one group triggered a large avalanche that caught all seven and totally buried six. One woman was only partially buried, suffered broken ribs, but survived. The seven party members of the second group became rescuers, and used a saw to cut tree branches for probes. One rescuer had a cellular phone in his vehicle at the trailhead, which he used to call the search and rescue team. In the next 4 hours, rescuers found five victims buried approximately 5 feet deep. Three were pronounced dead at the scene; one other died a short time later; but one survived. He had been buried for more than 1 hour beneath about 5 feet of snow. He was also beneath or next to his snowmobile, which provided enough protection to keep him from suffocating. He was found by a prober using a tree branch, which apparently first struck the snowmobile. The fifth and final victim -- the 7-year-old son of totally buried survivor -- was found the following day beneath more than 10 feet of snow. Dogs had alerted, but the debris had been deeper than the length of the probes. This avalanche claimed five victims, making it the worst avalanche accident in the U.S. since seven died at Alpine Meadows, CA, on March 31, 1982. It was the worst in Montana since five climbers died on Mt. Cleveland in Glacier National Park on December 29, 1969.

On the same day (the 31st) as the above accident and only a few miles away, another snowmobiler triggered an avalanche and barely escaped death because the gloved fingers of one hand remained on the surface. The victim's companions dug him out. Another close call occurred on the 5th at Bear Valley, near Portage, AK. Two miners were totally buried inside their tents by an avalanche. They managed to dig themselves out.

A total of 12 avalanche incidents was reported in December. These resulted in 21 people caught, 4 partly buried, 9 buried, 1 injured, and 5 killed. The winter's statistics through December read: 27 people caught, 7 partly buried, 10 buried, 1 injured, and 5 killed.

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

DECEMBER 1993
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL				WATER EQUIVALENT								SNOW DEPTH				TEMPERATURE			WIND SPEED AND DIRECTION					
	TOTAL SNOW-FALL IN.	AVG DEN	MAX		TOTAL WATER IN.	MAX 24 HR. IN.	D IN.	A	NUMBER OF DAYS				D A	MAX IN.	T IN.	MIN IN.	AVG IN.	MEAN MAX DEGREES F	MEAN MIN DEGREES F	AVG	AVG FOR MO. MPH	6 HOUR PERIODS		FASTEST HOUR MPH	D DIR.
			IN.	E					GE	GE	GE	GE										15	20		
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																									
ASPEN HIGHLANDS, CO	24.6	.07	6	12	1.75	.40	12	8	4	0	0	32	23	23	27	27.6	2.2	14.9	8.5	7	2	--	--	--	
BEAR LAKE, RMNP, CO	18.0	.08	4	28	1.49	.25	20	8	4	0	0	30	28	22	24	25.5	11.0	18.3	--	--	--	--	--	--	
BEAVER CREEK, COLO	52.1	.07	14	13	3.61	1.10	13	8	7	2	1	48	28	29	38	24.9	5.8	15.4	7.1	2	0	19	260	4	
BERTHOUD PASS, COLO	54.8	.06	8	13	3.10	.45	16	13	6	0	0	39	29	23	29	21.0	.8	10.9	14.7	57	23	43	260	5	
BRECKENRIDGE, COLO	21.5	.06	3	5	1.23	.25	5	7	2	0	0	36	28	27	30	20.6	5.3	13.0	--	--	--	--	--	--	
COPPER MTN, COLO	34.5	.05	5	13	1.62	.30	13	9	1	0	0	34	28	24	28	22.5	3.9	13.2	16.9	74	35	45	250	4	
CRESTED BUTTE, COLO	19.0	.08	4	12	1.55	.30	12	10	3	0	0	32	28	24	28	--	--	--	9.8M	13M	8M	--	--	--	
GOthic, COLO	29.6	.06	5	28	1.82	.30	12	8	5	0	0	30	28	19	24	26.3	.0	13.1	--	--	--	--	--	--	
KEYSTONE, COLO	23.7	--	6	13	--	--	--	--	--	--	--	35	17	22	31	23.4	4.3	13.8	--	--	--	--	--	--	
MONARCH, COLO	25.7	.05	5	16	1.37	.35	28	8	1	0	0	36	29	27	30	24.3	9.9	17.1	22.5M	89M	73M	--	--	--	
PURGATORY, COLO	27.7	.07	10	16	1.92	.65	16	5	4	1	0	34	16	20	26	23.2	8.7	16.0	--	--	--	--	--	--	
RED MTN PASS U.S.550	34.5	.07	7	13	2.35	.50	16	8	6	1	0	37	20	23	30	26.1M	3.8M	14.9M	--	--	--	--	--	--	
STEAMBOAT, COLORADO	59.0	.05	11	13	3.05	.75	13	10	6	3	0	45	17	26	35	27.3	12.0	19.6	--	--	--	--	--	--	
SUNLIGHT, COLO	19.5	.08	4	13	1.62	.40	13	7	4	0	0	35	28	27	31	26.4	10.6	18.5	--	--	--	--	--	--	
TAOS, NEW MEXICO	38.0	.04	9	17	1.53	.50	13	5	3	1	0	60	17	42	50	24.3	13.2	18.7	10.1M	25M	6M	--	--	--	
TELLURIDE, COLO	34.2	.06	6	12	2.06	.35	12	8	6	0	0	35	23	20	27	23.3	8.8	16.0	7.9	6	1	27	200	12	
VAIL, COLO	37.7	.07	9	13	2.58	.75	13	9	3	1	0	42	29	29	34	22.5	6.6	14.5	7.8	8	0	23	350	12	
WINTER PARK 1E, COLO	35.6	.06	6	16	2.09	.52	16	9	4	1	0	28	23	17	21	25.8	1.2	13.5	--	--	--	--	--	--	
WINTER PARK S.A., CO	65.0	.06	11	16	3.72	.78	16	12	7	1	0	46	20	29	38	17.6	5.0	11.3	7.5	7	2	31	110	10	
WOLF CREEK, COLO	41.3	.07	9	12	2.91	1.00	12	7	5	1	1	63	20	38	48	29.5	8.0	18.7	17.3M	74M	49M	--	--	--	
INTERMOUNTAIN																									
ALTA, UTAH	53.0	.06	16	12	3.06	.96	12	7	5	1	0	51	12	29	39	32.0	8.0	20.3	--	--	--	--	--	--	
BIG MOUNTAIN, MONT	58.1	--	8	31	--	--	--	--	--	--	--	--	--	--	--	23.4M	15.4M	19.4M	--	--	--	--	--	--	
BRIDGER BOWL, MONT	76.5	.08	13	2	6.35	1.10	2	11	10	6	3	50	31	23	41	29.3	16.3	22.8	13.9	68	26	32	250	24	
GRAND TARGHEE, WYO	61.5	--	11	5	--	--	--	--	--	--	--	35	23	19	31	28.2M	9.7M	18.9M	--	--	--	--	--	--	
JACKSON HOLE 1, WYO	62.2	--	10	5	--	--	--	--	--	--	--	44	9	13	33	20.7	13.6	17.1	17.2	77	38	43	240	5	
SCHWEITZER BASIN, ID	54.0	--	11	8	--	--	--	--	--	--	--	53	31	30	45	25.8M	17.4M	21.6M	--	--	--	--	--	--	
SNOWBIRD, UTAH	54.5	.08	11	12	4.10	1.08	13	10	6	2	1	35	13	18	28	30.4	14.9	22.6	25.0M	104M	76M	--	--	--	
SUN VALLEY, IDAHO	22.0	.07	7	8	1.57	.61	8	5	3	1	0	24	10	9	16	25.1	15.1	20.1	--	--	--	--	--	--	
TETON PASS, WYO 22	39.1	.09	9	2	3.38	.76	2	7	6	3	0	--	--	--	--	22.8	12.2	17.5	--	--	--	--	--	--	
WEST COAST																									
ALPINE MEADOWS, CAL	54.0	.13	17	12	7.13	2.72	9	9	6	4	2	42	15	11	28	34.5	23.1	28.8	25.3	102	87	60	230	8	
ALYESKA, ALASKA	128.5	.10	31	6	15.04	4.75	6	23	19	8	2	93	26	52	78	32.9	24.9	28.9	5.1	0	0	18	250	2	
EAGLECREST, ALASKA	20.7	.13	5	13	11.48	1.77	25	15	14	12	3	13	14	2	6	33.3M	28.2M	30.8M	--	--	--	--	--	--	
HEAVENLY VALLEY, CAL	27.0	--	15	12	--	--	--	--	--	--	--	26	12	12	19	38.6	17.5	28.0	--	--	--	--	--	--	
MT. RAINIER PARADISE	84.0	.17	13	9	14.97	3.82	1	13	13	11	5	67	14	33	55	35.5	22.9	29.2	4.7	12	10	33	280	4	
MT. HOOD MDWS, ORE.	65.5	.18	12	9	15.77	3.88	1	14	12	9	5	48	9	22	40	38.2	25.0	31.6	14.8	57	33	49	270	4	
SNOQUALMIE PASS I-90	58.1	.18	9	10	10.28	1.73	1	12	11	8	4	43	10	20	31	31.6M	23.3M	27.5M	--	--	--	--	--	--	
SQUAW VALLEY, CALIF	35.6	--	13	9	--	--	--	--	--	--	--	55	15	26	43	34.8	21.9	28.4	26.7	94	78	61	240	7	
STEVENS PASS 5E WASH	87.0	.25	15	12	22.43	4.04	2	12	12	12	9	51	10	30	41	28.2	21.6	24.9	8.5M	18M	7M	--	--	--	
STEVENS PASS, WASH	69.5	.11	13	10	7.57	2.00	2	11	10	7	1	51	12	28	41	31.8M	21.4M	26.6M	8.8	18	6	--	--	--	
SUGAR BOWL, CALIF	56.0	--	17	9	--	--	--	--	--	--	--	64	14	28	47	32.8M	18.8M	25.8M	14.3M	48M	35M	65	90	23	

DECEMBER 1993
AVALANCHE SUMMARYCENTRAL AND SOUTHERN ROCKY MOUNTAINSINTERMOUNTAINWEST COAST

-- = DATA INCOMPLETE OR MISSING
GE = GREATER THAN OR EQUAL TO
+ = ALSO OCCURRED ON OTHER DATES